

# PEAVEY ELECTRONICS

## SP™ 2X

### SPECIFICATIONS

Frequency response, 1 meter on-axis, swept-sine in anechoic environment:

53 Hz — 16 kHz ( $\pm 3$  dB)

Usable low frequency limit (-10 dB point):

44 Hz

Power handling:

Full Range:

500 W continuous

1,000 W program

2,000 W peak

Low Frequency Section:

500 W continuous

1,000 W program

2,000 W peak

High Frequency Section:

60 W continuous

120 W program

240 W peak

Sound pressure level, 1 Watt, 1 meter in anechoic environment:

Full Range:

98.0 dB SPL, (2.83 V input)

Low Frequency Section:

99.0 dB SPL, (2.83 V input)

High Frequency Section:

107.0 dB SPL, (2.83 V input)

Maximum sound pressure level (1 meter):

Full Range:

125.0 dB SPL continuous

131.0 dB SPL peak

Low Frequency Section:

126.0 dB SPL continuous

132.0 dB SPL peak

High Frequency Section:

124.8 dB SPL continuous

130.8 dB SPL peak

Transducer complement:

Low Frequency Section:

1x 15 in. woofer, vented

1508-8 HE BWX



High Frequency Section:

1x .875 in. exit/51 mm voice coil compression driver on CD horn Rx22™ on a CH®-941

**Box tuning frequency:**

Low Frequency Section:

53 Hz

**Harmonic distortion:**

1% rated power

2nd Harmonic:

100 Hz: 1.62%

1 kHz: 0.22%

3rd Harmonic:

100 Hz: 0.52%

1 kHz: 0.63%

10% rated power

2nd Harmonic:

100 Hz: 5.09%

1 kHz: 0.81%

3rd Harmonic:

100 Hz: 1.97%

1 kHz: 0.92%

**Crossover frequency (internal passive):**

Low Frequency — High Frequency:  
1,600 Hz

**Recommended active crossover frequency region and slope:**

Low Frequency — High Frequency:  
1,600 Hz at 18 dB/octave

**Time offset:**

Low frequency: 0.00 ms

High frequency: 0.65 ms

**Impedance (Z):**

Full Range:

Nominal: 8.0  $\Omega$

Minimum: 7.2  $\Omega$

Low Frequency:

Nominal: 8.0  $\Omega$

Minimum: 6.1  $\Omega$

High Frequency:

Nominal: 8.0  $\Omega$

Minimum: 6.0  $\Omega$



### Input connections:

2x 1/4 in. phone jack and 1x Neutrik® NL4 Speakon® (Biamp only)

### Enclosure materials and finish:

3/4" OSB finished in black carpet

### Mounting provisions:

This unit is not designed for overhead suspension

### Dimensions (H x W x D):

#### Front:

33.25 in. x 21.00 in. x 22.75 in.  
845 mm x 533 mm x 578 mm

#### Rear:

33.25 in. x 14.00 in. x 22.75 in.  
845 mm x 356 mm x 578 mm

### Net weight:

85 lbs. (38.6 kg)

### Features:

- Two-way, full range/biampable PA enclosure
- Sound Guard HF driver protection circuit
- Rx22™ driver with a 2" titanium diaphragm coupled to a CH® 941 90° X 40° constant-directivity horn
- 15" BWX Black Widow® with Kevlar® cone and field-replaceable basket
- SP™ X series trapezoidal cabinet and styling with integral stand adapter
- External voicing switch
- Neutrik® biamp jack

### Description

The SP 2X is both a cosmetic and performance redesign of the SP 2G loudspeaker system. This high power handling two-way loudspeaker system is comprised of a 15" BWX woofer with a Kevlar impregnated cone and an Rx22 compression driver coupled to a CH 941 constant directivity horn. This unit can be driven in full-range mode simply by plugging into one of the two 1/4" phone jacks on the input plate. A Neutrik Speakon connector is provided as an input for biamp operation. The trapezoidal design of the enclosure allows arrays to be constructed much more easily than it would be using a rectangular shaped box. This shape also greatly reduces the build-up of standing waves on the inside of the enclosure. This ensures a minimum of mid-bass and mid-range coloration of the reproduced sound due to the cabinet. The SP 2X is constructed of 3/4" OSB and covered with Peavey's durable black carpet. Polymer corners are also a part of the unit to provide added protection to the enclosure. A powder coated expanded metal grille covers the lower part of the front of the enclosure to protect the low

frequency driver from unforeseen accidents.

A voicing switch on the input cup allows for the selection of two different response settings for the loudspeaker system. The normal position will yield a more flat response. The EQ position will have decreased output in the mid-range and upper mid-range areas. This position may be preferred for some types of program material. The response curve for each position is given in figure 1.

Sound Guard III is the redesign of Peavey's proprietary circuit for high frequency driver protection for the new Rx22 compression driver. This is an integral part of the crossover for the SP 2X. The input signal is routed through the Sound Guard III circuit in both full-range and biamp modes of operation. When the high frequency drive level to the SP 2X exceeds a predetermined threshold the Sound Guard III circuit is engaged. The effect that this has is to subtly decrease the signal level going to the Rx22 so that it will not be damaged due to long-term overpowering. Short duration transients will not be attenuated by Sound Guard III and have the possibility to damage the Rx22. The Sound Guard III circuit is a dynamic circuit that will attenuate the signal more the larger the signal is, very similar to a compressor. This is

accomplished through the use of a specially selected dynamically resistive light bulb. If the bulb in your Sound Guard III should ever burn out a replacement may be obtained from an Authorized Peavey Service Center. However, if a Peavey replacement bulb is not readily available, a Sylvania SK3 bulb may be located at various loudspeaker or electronics parts stores.

### Frequency response

This measurement is useful in determining how accurately a given unit reproduces an input signal. The frequency response of the SP 2X is measured at a distance of 1-meter using a 1 Watt (into the nominal impedance) swept-sine input signal. As shown in figure 1, the selected drivers in the SP 2X combine to give a smooth frequency response from 53 Hz — 16 kHz.

### Power handling

There are many different approaches to power handling ratings. Peavey rates this loudspeaker system's power handling using a full-range form of the AES Standard 2-1984. Using audio band 20 Hz to 20 kHz pink noise with peaks of four times the RMS level, this strenuous test signal assures the user that every portion of this system can withstand today's high technology music. This rating is contingent

### Amplitude Response (1W 1m On-Axis)

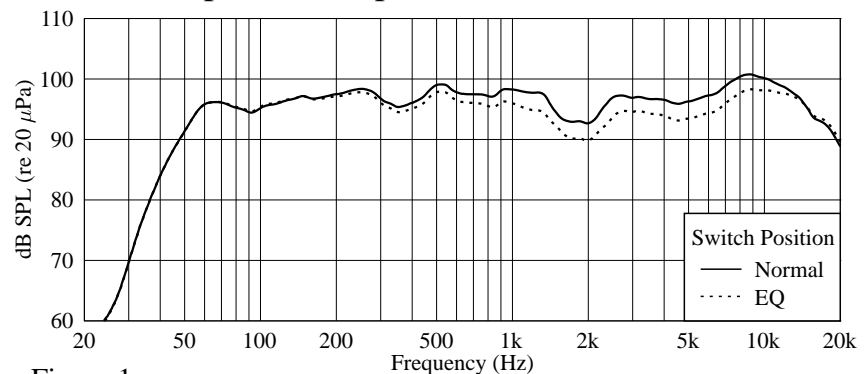


Figure 1

### Impedance

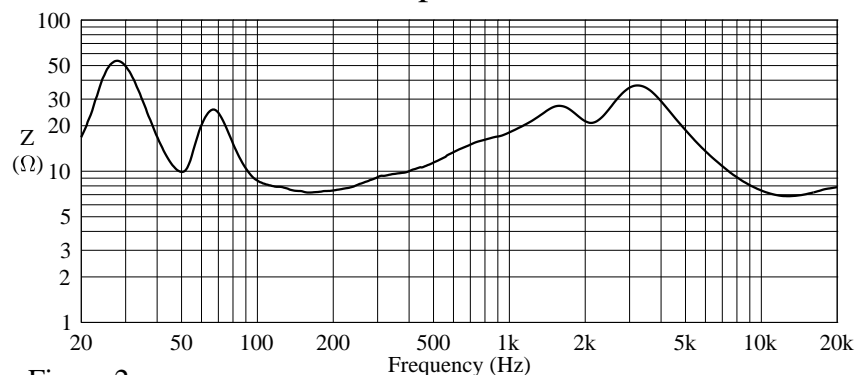


Figure 2

upon having a minimum of 3 dB of amplifier headroom available.

**Harmonic Distortion**

Second and third harmonic distortions vs. frequency are plotted in figures 3 and 4 for two power levels. Ten percent (10%) of rated input power and either one percent (1%) of rated input power or one Watt, whichever is greater. Distortion is read from the graph as the difference between the fundamental signal (frequency response) and the desired harmonic. As an example, a distortion curve that is down 40 dB from the fundamental is equivalent to 1% distortion.

**Mounting**

**Warning:** This unit is not designed for overhead suspension. SA™ 1 stand adapter is included on the bottom for stand mounting applications.

**Architectural and Engineering Specifications**

The loudspeaker system shall have an operating bandwidth of 53 Hz — 16 kHz. The nominal output level shall be 98.0 dB when measured at a distance of one meter with an input of one Watt. The nominal impedance shall be 8.0 Ohms. The maximum continuous power handling shall be 500 Watts, maximum program power of 1,000 Watts and a peak power input of at least 2,000 Watts, with a minimum amplifier headroom of 3 dB. The nominal radiation geometry shall be 90 degrees in the horizontal plane and 40 degrees in the vertical plane. The outside dimensions shall be 33.25 inches high by 21.00 inches wide by 22.75 inches deep. The weight shall be 85 pounds. The loudspeaker system shall be a Peavey model SP 2X.

This product is manufactured under U.S. Patent 6,064,745.

**3 + 2 YEAR LIMITED WARRANTY**

**NOTE:** For details, refer to the warranty statement. Copies of this statement may be obtained by contacting Peavey Electronics Corporation, P.O. Box 2898, Meridian, Mississippi 39301-2898.

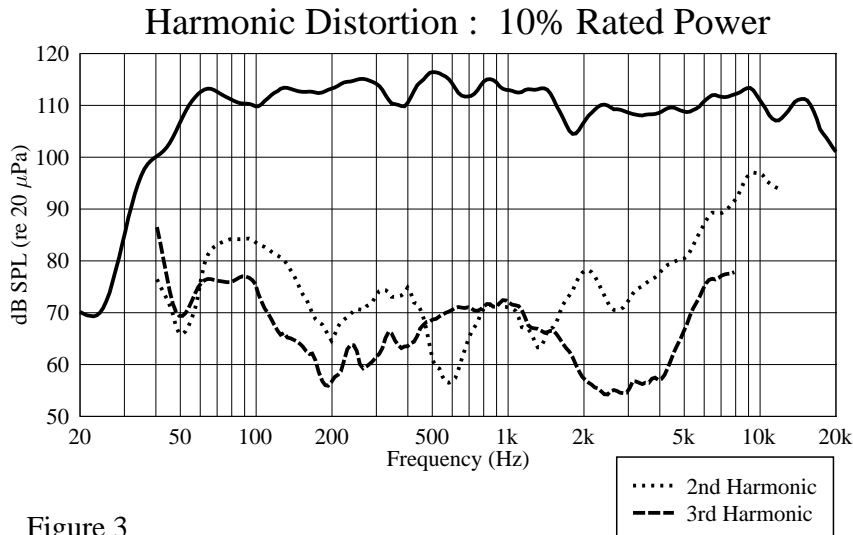


Figure 3

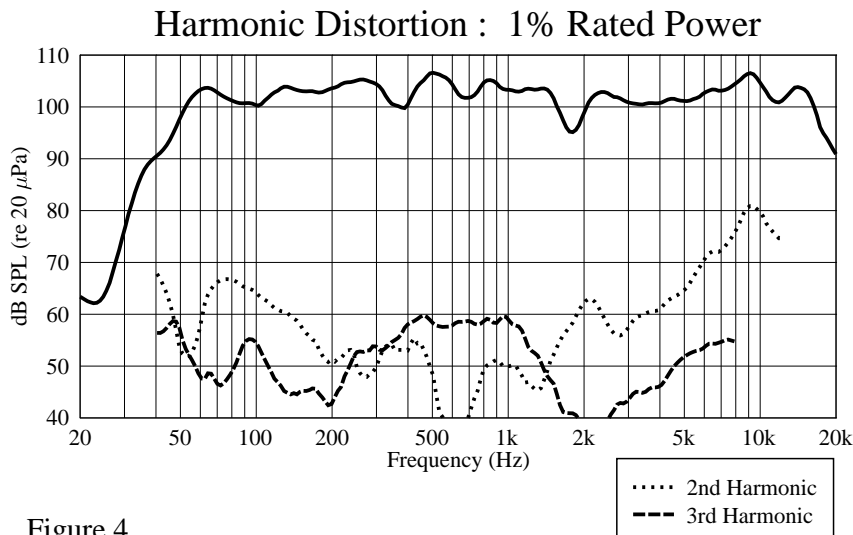


Figure 4

SP™ 2X INPUT

**SP™ 2X**

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**PEAVEY®**



BI-AMP INPUT

LOWES — 1+ LF+  
          — 1- LF-



HIGHS — 2+ HF+  
          — 2- HF-

MAX POWER: 1000 W PROGRAM

EQ SWITCH

EQ   NORMAL

**WARNING: THIS SPEAKER SYSTEM CAN PERMANENTLY DAMAGE HEARING! USE EXTREME CARE SETTING MAXIMUM LOUDNESS**

8 OHMS   85 LBS.  
38.6 kg.

**FULL RANGE INPUTS  
IN PARALLEL**

HF DRIVER PROTECTED BY SOUNDGUARD™ III  
BUILT UNDER U.S. PATENT NO. 6,064,745



Features and specifications subject to change without notice.

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